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Research Note

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Tire Pressure Special Study: Interview Data

Although 85% of the population of drivers are concerned about maintaining proper tire inflation in their vehicles, only 25% use the correct method to determine the manufacturer's recommended tire pressure for their tires. In addition, 43% of the population do not take an active role in maintaining their tire pressure.

"Tire Pressure Special Study: Interview Data" is the second in a series of research notes containing results from the Tire Pressure Special Study (TPSS) conducted by the National Highway Traffic Safety Administration (NHTSA) in 2001. The focus of this research note is on results from the driver interviews. Upcoming research notes will highlight vehicle profile data and observations of actual tire pressure.

Background

In 2000, Congress passed the Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act. Section 13 of this act directed the Department of Transportation to complete a rulemaking within one year. This rulemaking requires implementation of a warning system in new motor vehicles indicating under-inflated tires.

In response to Section 13 of the TREAD Act, NHTSA's National Center for Statistics and Analysis (NCSA) conducted the TPSS. The TPSS was designed to assess to what extent passenger vehicle operators are aware of the recommended tire pressures for their vehicles, the frequency and the means they use to measure their tire pressure, and how significantly actual measured tire pressure differed from the manufacturer's recommended tire pressure. The data collected will be used in support of various rulemaking actions. These include an upgrade to the placement and contents of the vehicle placard and the development of an onboard tire pressure measuring sensor.

Data Collection Methodology

Field data collection was conducted through the infrastructure of the National Automotive Sampling System Crashworthiness Data System (NASS CDS). The NASS CDS consists of teams of researchers located at Primary Sampling Units (PSUs) throughout the United States. The PSUs are located in urban, suburban, and rural settings with nationally representative populations.

The population surveyed by the researchers in the TPSS represents a sample frame consisting of drivers who used refueling stations to fill up their vehicles between the hours of 8:00 am and 5:00 pm. Data collection was conducted from February 1st through February 14th, 2001.

Vehicles surveyed included passenger cars and light trucks. NHTSA classifies light trucks as sport utility vehicles, pickup trucks, and vans with a Gross Vehicle Weight Rating of less than 10,000 pounds. A total of 11,530 vehicles were included in the survey, of which 6,442 were passenger cars, 1,874 were sport utility vehicles, 1,376 were vans, and 1,838 were pickup trucks. The distribution of vehicles was consistent with national estimates of vehicle registration.

Data collected during the TPSS included daily site information, driver interview and profile data, vehicle profile data, and tire data for all four tires on the vehicle. The driver interview contained information regarding the driver's concern about proper tire inflation, the extent to which the driver was aware of the vehicle manufacturer's recommended tire pressure, if the driver actually monitors his/her tire pressure, and how often and by what means he/she checks it. A complete description of the data collection process was presented in the previous research note "Tire Pressure Special Study: Methodology."

Analysis of the Driver Interviews

Survey data were analyzed for the following three categories of vehicles:

- 1) Passenger Cars with P-Metric Tires (Cars w/ P Tires);
- 2) Pickup Trucks, Sport Utility Vehicles, and Vans with P-Metric Tires (Light Trucks w/ P Tires);
- 3) Pickup Trucks, Sport Utility Vehicles, and Vans with Other Type Tires (Light Trucks w/ Other Tires).

P-Metric tires are regular passenger car tires. Their labeling has the format "P205/75R14." Other Type tires include LT tires, which are light truck tires with the format "LT235/85R15/D," and High Flotation tires that have the format "31X10.50R15LT/C."

Information on standard tire labeling formats can be found in the "2000 Tire Guide" courtesy of the Rubber Manufacturers Association.

Estimates and Sampling Error

Each estimate in the following tables is shown with its corresponding sampling error (expressed in percentage points) in parentheses. Because estimates from the TPSS are based on a sample, they are statistically weighted according to the sample design and are subject to sampling error. Adding and subtracting twice the sampling error from the corresponding estimate will produce an approximate 95 percent confidence interval for the estimate. This means that one can be 95 percent confident that the true percentage lies within this interval.

Results of the Driver Interviews

Table 1 shows the results of the question: "Is maintaining proper tire inflation a concern for you?" 85% of drivers interviewed reported that they are concerned about proper inflation. There did not appear to be any significant difference in percentage when broken out by vehicle body type and tire type.

Table 1
Percentage of Drivers Concerned with Proper Tire Inflation by Type of Vehicle and Response
(Estimates and Sampling Errors in Percentages)

Vehicle Type	Response	
	Concerned	Not Concerned
Cars w/ P Tires	84 (2.6)	16 (2.6)
Light Trucks w/ P Tires	87 (2.5)	13 (2.5)
Light Trucks w/ Other Tires	88 (3.8)	12 (3.8)
Overall	85 (2.3)	15 (2.3)

Source: National Center for Statistics and Analysis, NHTSA, NASS 2001 Tire Pressure Special Study.

Table 2 shows the results of the question: "How often do you check your tire pressure?" Drivers interviewed were not given multiple choices but were asked to provide a time period. The responses were then categorized into their most common occurrences. Drivers of Light Trucks with Other Tires check their tires more frequently (48% weekly or monthly) than do drivers of Cars and Light Trucks with Passenger tires (less than 35% weekly or monthly). The most frequent response for drivers of vehicles with passenger tires was "when serviced."

Table 2
Percentage of Drivers Who Check Their Tire Pressure by Type of Vehicle and Response
(Estimates and Sampling Errors in Percentages)

Vehicle Type	Response						
	Weekly	Monthly	When They Seem Low	When Serviced	Before a Long Trip	Other	Does Not Check at All
Cars w/ P Tires	9 (0.7)	21 (1.4)	26 (3.7)	30 (2.8)	1 (0.2)	6 (0.8)	7 (0.9)
Light Trucks w/ P Tires	9 (0.7)	25 (1.2)	24 (3.4)	28 (4.0)	2 (0.6)	8 (1.0)	4 (0.9)
Light Trucks w/ Other Tires	8 (2.5)	40 (5.9)	16 (5.1)	26 (3.0)	2 (1.1)	7 (1.9)	2 (0.9)
Overall	9 (0.7)	24 (1.0)	25 (3.4)	28 (3.0)	2 (0.4)	7 (0.8)	5 (0.8)

Source: National Center for Statistics and Analysis, NHTSA, NASS 2001 Tire Pressure Special Study.

Table 3 shows the responses to the question: “How do you normally check your tires for proper inflation?” In some cases there was another person responsible for the maintenance of the car, so those drivers could not name a method for checking the tire pressure of their

vehicles. For the most part, and for all three categories of vehicles analyzed, drivers (48%) check their tire pressures by using a tire pressure gauge. A high percentage (15%) of people check their tire pressure visually.

Table 3
Percentage of Drivers Using the Following Methods to Check Tire Pressure by Type of Vehicle and Response
(Estimates and Sampling Errors in Percentages)

Vehicle Type	Response					
	Pressure Gauge	Visually	When Serviced	Other Person Responsible for Car	Other Method	Does Not Check at All
Cars w/ P Tires	42 (3.0)	16 (2.0)	27 (2.7)	10 (1.0)	1 (0.2)	4 (0.6)
Light Trucks w/ P Tires	51 (2.0)	13 (2.4)	24 (3.0)	8 (0.7)	1 (0.2)	2 (0.3)
Light Trucks w/ Other Tires	68 (7.4)	6 (1.2)	18 (6.9)	7 (2.9)	0 (0.0)	1 (0.2)
Overall	48 (2.3)	15 (2.1)	25 (2.8)	9 (0.7)	1 (0.1)	3 (0.4)

Source: National Center for Statistics and Analysis, NHTSA, NASS 2001 Tire Pressure Special Study.

Table 4 shows the responses to the question: “How do you normally determine what pressure to set your tires?” The most frequent response from drivers of sport utility vehicles, vans, and pickup trucks was that they determine the proper tire pressure inflation level by referring to the tire label. Of those drivers of passenger cars who are responsible for the maintenance of their own vehicle, the most frequent response was also the tire label. It should be noted

that the value on the tire label is the maximum pressure for that tire, and the manufacturer’s recommended tire pressure can be found either in the owner’s manual or on the placard.

The unknown column was used when the researcher could not get an answer to the question. It does not necessarily mean that the driver did not know how to determine proper tire inflation.

Table 4
Percentage of Drivers Using the Following References to Determine Proper Tire Inflation Levels for Their Vehicle by Type of Vehicle and Response
(Estimates and Sampling Errors in Percentages)

Vehicle Type	Response							
	Owner’s Manual	Vehicle Placard	Tire Labeling	Visually	Other Person	Other Method	Does Not Know	Unknown
Cars w/ P Tires	18 (2.3)	8 (1.1)	22 (2.0)	11 (1.2)	24 (3.4)	10 (2.2)	7 (1.2)	1 (0.5)
Light Trucks w/ P Tires	15 (1.9)	7 (0.7)	31 (4.5)	8 (1.1)	23 (3.6)	10 (1.2)	4 (0.9)	2 (0.5)
Light Trucks w/ Other Tires	22 (8.9)	11 (4.1)	44 (6.1)	7 (2.2)	4 (1.4)	10 (2.4)	2 (0.9)	0 (0.1)
Overall	17 (2.5)	8 (0.9)	27 (3.7)	10 (1.1)	22 (3.3)	10 (1.8)	6 (0.9)	1 (0.2)

Source: National Center for Statistics and Analysis, NHTSA, NASS 2001 Tire Pressure Special Study.

Table 5 shows the responses by gender to the question: “How do you normally determine what pressure to set your tires?” While 15% of female drivers check the owner’s manual and another 13%

check the tire label, most female drivers (40%) responded that another person is responsible for determining proper tire pressure. Of male drivers, 36% use the tire label as their guide.

Table 5
Percent of Drivers Using the Following References
To Determine Proper Tire Inflation Levels for their Vehicle by Gender and Response
(Estimates and Sampling Errors in Percentages)

Gender	Response							
	Manual	Placard	Tire Label	Visually	Other Person	Other Method	Does Not Know	Unknown
Male	18 (3.1)	10 (1.1)	36 (4.7)	11 (1.5)	10 (2.4)	11 (2.0)	4 (0.8)	1 (0.2)
Female	15 (2.2)	5 (0.9)	13 (2.3)	8 (1.2)	40 (4.6)	8 (2.2)	9 (1.5)	2 (0.5)

Source: National Center for Statistics and Analysis, NHTSA, NASS 2001 Tire Pressure Special Study.

Additional Analyses

Many other variables were collected during the tire pressure study, including driver profile data, vehicle

general data, and the measurements of actual tire pressures taken by the researchers. Results from these analyses will be presented in future research notes.

For additional copies of this research note, please call (202)366-4198 or fax your request to (202)366-3189. For questions regarding the data reported in this research, contact Nancy Bondy [202-366-5353] or Kristin Thiriez [202-366-2837] of the National Center for Statistics and Analysis. This research note and other general information on highway traffic safety may be accessed by internet users at <http://www.nhtsa.dot.gov/people/ncsa>.

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